Seasonality of Marriages on Easter Island

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Introduction

Throughout time, man's activities are distributed in periodic cycles. These vary according to the economic model and environmental conditions, as well as cultural and religious beliefs. In modern societies, public festivities, holiday periods and social ceremonies also contribute to such cycles.

Seasonal movement includes the variations produced in births, marriages and deaths during the year (Henry 1983). These are long-lasting movements. There is no doubt that there are close relations between birth and nuptial rates. In historical demography, the nuptial rate probably has been the main birth rate regulating element. In this sense, the seasonality of marriages is considered as a good estimate of a populations' behavior (Livi-Bacci 1993).

Easter Island, called Rapa Nui by its inhabitants, is situated in the middle of the Pacific Ocean, 3,700 km from the Chilean mainland and more than 2,000 km from the nearest inhabited land (Pitcairn Island). It's location was an important geographical obstacle for, until the airport's construction in 1967, an annual ship was the only comunication between the island and the Chilean mainland (Boutilier 1992). Rapa Nui is situated at 27° S latitude, thus the seasons are opposite to those in the Northern Hemisphere. December, January and February correspond to the southern summer, and seasons are defined in these dates:

- Spring: from September 21st to December 20th.
- Summer: from December 21st to March 20th.
- Autumn: from March 21st to June 20th.
- Winter: from June 21st to September 20th.

The aim of this work is to study the distribution of marriages celebrated in Easter Island along the annual cycle, and to estimate its possible relationship with some factors such as religious celebrations, high or low economic activity periods, harvest and fishing times, as well as social ceremonies and cultural functions.

If none of these factors had an influence on marriages' seasonality, the number of marriages would be distributed at random along the year as might have been expected. However, the results obtained studying Easter Island's population during a period of 69 years prove differently.

Material and Methods

The basic unit of this study is marriage, defined as the union between the two sexes who legalize their relationship in a civil or canonical way.

Civil and church registers in Rapa Nui have been used as an information source. The reason for studying both registers is in order to see if the couples legalized their relationship in either a civil or a religious way, or both ways. It must be considered that Christianization in the island took place at the end of 19th century when the first missionaries arrived (Routledge 1919).

Data in the civil register begins in 1914 and documents dating from 1886 exist in the church registers, although these do not exist as registers' books until 1937. However, as explained below, the following periods are considered for this work:

- civil register: 1917-1985.
- church register: 1937-1985.

Despite the existence of some record books of 1914 and 1915, the detailed civil register really begins in 1916. In that year, 43 marriages were registered, all of them during July and August and on the same dates. Marriages were recorded at intervals of fifteen minutes. Thus, all matrimonies registered before 1917 have been eliminated from this study because they represent marriages celebrated in preceding years and were not recorded previously due to the non-existence of the register (fig.1).

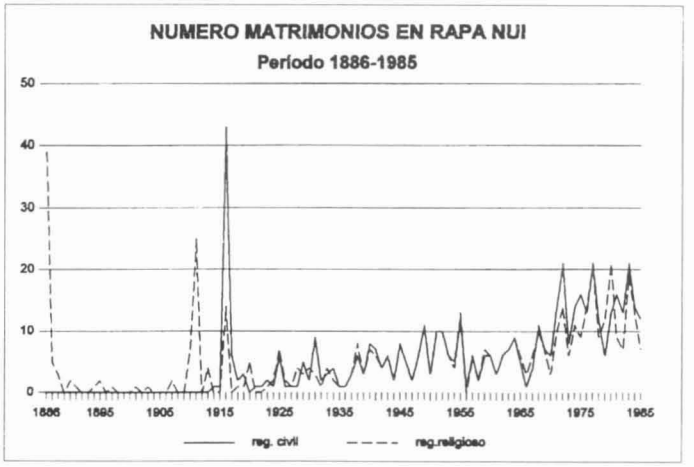

Figure 1. Number of marriages in civil and church register of Rapa Nui from 1886 until 1985.

Concerning the church register, from 1886 to 1936, all marriages are recorded on specific days of given years. Thus, if they were included in the study of seasonality, some methodological errors would be introduced (fig.1). During 1914-1985, 508 civil marriages were registered in Easter Island and in the period 1886-1985, 531 canonical unions were recorded (table 1).

Fig. 1 represents all marriages recorded in both registers. The two higher peaks correspond to those years when marriages started to be recorded, independent of the date of their celebration.

During the first part of 20th century, many couples were recorded in both registers with their hispanicized surname (for example, Chávez is the Spanish form of the Rapanui name, Teave). Some years later, mainly from the 1960s on, those couples who wished it were recorded again with their original surname. In all these cases, the date of the new inscription together with the original date of the marriage celebration were registered. Duplicates have been removed from the study.

After these previous considerations, the total number of

PERIOD	N (RC)		N (RR)	
	TOTAL	STUDIED	TOTAL	STUDIED
1886-1890	--	--	49	--
1891-1895	--	--	4	--
1896-1900	--	--	1	--
1901-1905	--	--	2	--
1906-1910	--	--	9	--
1911-1915	2	--	29	--
1916-1920	54	11	21	--
1921-1925	11	11	9	--
1926-1930	10	10	14	--
1931-1935	19	19	10	--
1936-1940	21	21	22	21
1941-1945	27	27	26	26
1946-1950	27	27	27	27
1951-1955	43	43	43	43
1956-1960	21	21	21	21
1961-1965	30	30	31	31
1966-1970	29	29	29	29
1971-1975	73	73	52	52
1976-1980	65	65	77	77
1981-1985	76	76	55	55
TOTAL	508	463	531	382

Table 1. Marriages in civil and church registers in Rapa Nui since 1886 until 1985.

marriages used for the seasonality study is 463 in the civil register and 382 in the church one (table 1).

First of all, a global study was undertaken. The airport construction at the end of the 1960s released the population from its isolation and made a greater migratory movement in both directions far easier, as well as facilitating the arrival of tourists. Thus, two periods are considered (1917-1970 and 1971-1985) in order to examine if the possible social and economic changes that have taken place on the island have affected marriages.

Regarding the distribution of marriages along time, groups of five years have been taken to avoid aleatory concentrations due to the reduced size of the sample.

The seasonality of marriages is studied using a coefficient which represents the relative values of the studied variable during the months of the year. In this work, the coefficient of Henry (1974) has been used. To calculate the monthly coefficients, the total values of the studied period are summed up and divided by the number of days of the specific month. All twelve quotients obtained are summed up and the total reduced to 1200. In February, the mean number of days of this month during the whole studied period is considered due to its variability. For periods of at least ten years, the average number of days in February varies from 28.2 to 28.3 (Henry 1983) and the mean value considered is 28.25 because the error is insignificant.

If there were no seasonality, the number of marriages expected for each month would be 100 (figs. 2, 3). Upper values represent a higher trend than is expected for the marriage celebration. In the same way, lower values indicate a lesser trend than expected if marriages were celebrated at random, with no seasonal correlation.

The hypothesis proposed is to see whether or not there is the absence or presence of seasonality in marriages. In order to achieve this, a χ^2 test has been used. This is a good estimator, although there can be small deviations.

Results

Regarding seasonality of marriages for the period studied, the minimum number appears in November (fig.2). In the opposite way, in the canonical register, despite the fact that the minimum in November is also observed (fig.3), marriages

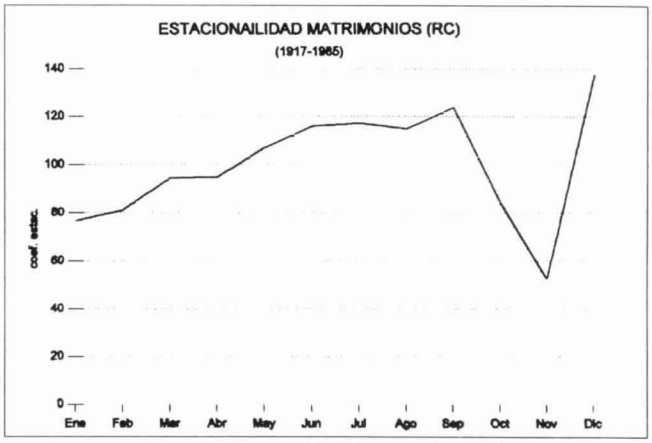

Figure 2. Seasonality of marriages in civil register.

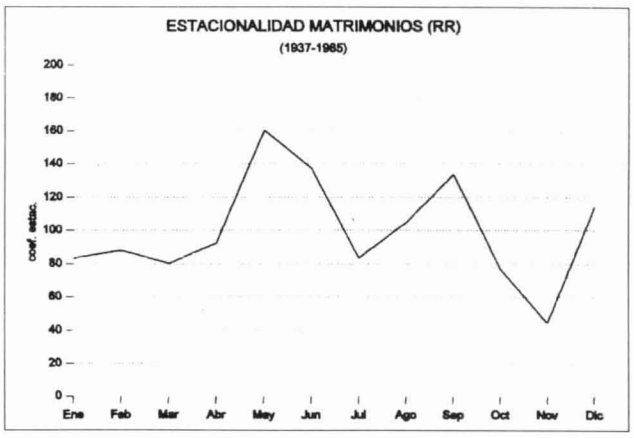

Figure 3. Seasonality of marriages in church register.

are distributed at random more or less during the year. The χ^2 value for the civil register is 7.09 with $p<0.05$ and for the church register is 11.14 with $p<0.01$ (table 2).

With the aim of observing if the arrival of immigrants (mainly from the Chilean mainland) and if the construction of the airport in 1967 had an effect on marriages patterns, two periods are considered, before and after 1970 (tables 3 and 4). In both cases, χ^2 values for the second period (1970-1985) are not significant, but they are in the first period. Results are shown in figs. 4 and 5.

If monthly marriage distribution is considered by

	RC (1917-1985)		RR (1937-1985)	
	N	C.E.	N	C.E.
January	30	76.48	27	83.33
February	29	81.13	26	88.06
March	37	94.32	26	80.25
April	36	94.83	29	92.49
May	42	107.07	52	160.49
June	44	115.91	43	137.14
July	46	117.27	27	83.33
August	45	114.72	34	104.94
September	47	123.81	42	133.95
October	33	84.13	25	77.16
November	20	52.68	14	44.65
December	54	137.66	37	114.20
TOTAL	463	1200.00	382	1200.00

Table 2. Number of marriages in months and Henry's

	1917-1970		1971-1985	
	N	S.C.	N	S.C.
January	16	75.71	14	77.37
February	18	93.47	11	66.71
March	19	89.91	18	99.48
April	23	112.47	13	74.24
May	25	118.30	17	93.95
June	30	146.70	14	79.95
July	26	123.04	20	110.53
August	26	123.04	19	105.00
September	22	107.58	25	142.77
October	11	52.05	22	121.58
November	10	48.90	10	57.11
December	23	108.84	31	171.32
TOTAL	249	1200.00	214	1200.00

x^2= 13.39 p<0.01 x^2=4.32 no sig.

Table 3. Seasonality coefficients in civil register in periods 1917-1970 and 1971-1985.

	1937-1970		1971-1985	
	N	S.C.	N	S.C.
January	10	59.41	17	109.20
February	18	117.35	8	56.39
March	13	77.23	13	83.51
April	20	122.78	9	59.74
May	27	160.41	25	160.59
June	28	171.89	15	99.57
July	19	112.88	8	51.39
August	21	124.76	13	83.51
September	17	104.36	25	165.94
October	8	47.53	17	109.20
November	2	12.28	12	79.65
December	15	89.12	22	141.32
TOTAL	198	1200.00	184	1200.00

χ^2= 34.78 p<0.001 χ^2=2.25 no sig.

Table 4. Seasonality coefficients in church register in periods 1937-1970 and 1971-1985.

MONTHS	17-25	26-35	36-45	46-55	56-65	66-75	76-85
January	-	4	6	2	2	8	8
February	1	1	2	6	7	4	8
March	-	2	4	4	4	12	11
April	1	2	6	7	5	4	11
May	-	2	5	11	6	5	13
June	2	2	5	9	9	7	10
July	3	4	4	6	6	9	14
August	3	4	4	11	3	10	10
September	1	2	6	6	3	13	16
October	2	1	1	5	1	12	11
November	3	3	2	2	-	1	9
December	6	2	3	1	5	17	20

Table 5. Monthly distribution of marriages by decades in civil register from 1917 on.

decades, no marriages were celebrated in November during 1956-1965 (civil register) nor in January, March and May from 1917-1925 (table 5). In the church register, no marriages were celebrated in November during 1946-1955 and 1956-1965 (table 6). Fig. 6 illustrates results by months in both registers during the studied period. An important minimum appears in November in both cases and some maximum peaks appear distributed in May, June and September. December's peak is more notorious in the civil register than in church's register.

Discussion

Data for this study were obtained in the Civil Register Office and in the Church of Santa Cruz in Hanga Roa. Despite of the small size of the sample, it was predictable due to the few inhabitants that live in the island. In order to minimize the errors that could show up during the data analysis, they have been gathered in classes, reducing random influence.

Some limitations appear when these hypotheses must be supported in bibliographic references because not enough has been written about aspects of Easter Island other than archaeology. The existence of ancient books is also scarce; thus, oral

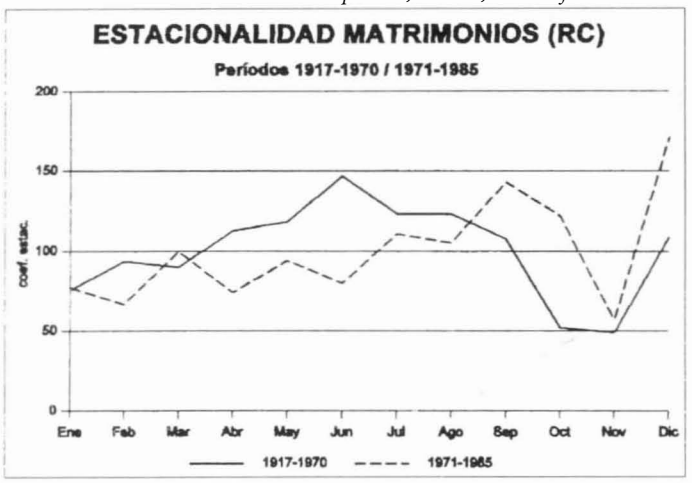

Figure 4. Seasonality in civil register in periods 1917-1970 and 1970-1985.

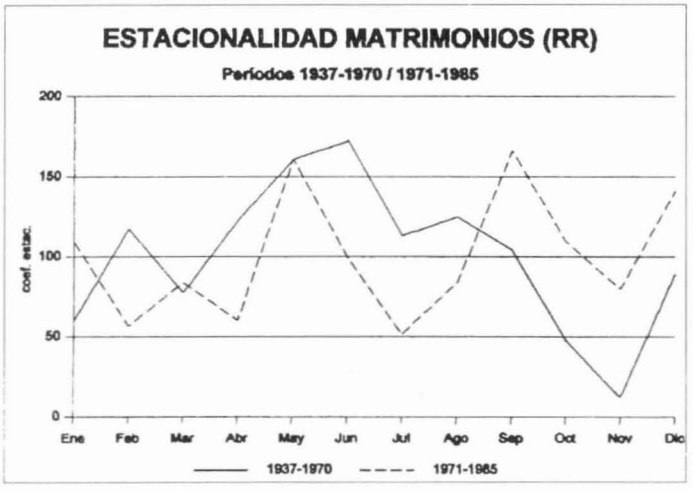

Figure 5. Seasonality in church register in periods 1937-1970 and 1970-1985.

tradition is always an important source of information that must be considered.

First of all, the total number of marriages celebrated on Easter Island shows three important peaks (fig. 1). Starting with the civil marriages, a maximum appears in 1916; it was the year when the civil register began. As it has been mentioned previously, these unions before 1917 have been rejected for the seasonality study in order to avoid the presence of some errors because all of them had been registered during July and August and the same day; thus, these data do not reflect accurately the real date of celebration.

Regarding canonical marriages, there are two peaks: one in 1886 and the other in 1911. In both cases, the situation produced is the same as that in the civil register, so to avoid errors and due to the lack of several data in some records, only marriages celebrated from 1937 on are considered for the seasonality study. At this point, an outstanding figure must be mentioned: the late parish priest of the church in Hanga Roa, Padre Ramiro Estévez. His cooperation and facilities were essential. In contrast to the Civil Register Office, where all the records books were chronologically ordered on shelves, the church contained numerous separate sheets which were piled up in boxes, with no order. After several hours, all of them

MONTHS	37-45	46-55	56-65	66-75	76-85
January	5	1	2	8	11
February	2	6	8	5	5
March	2	4	2	11	7
April	4	8	4	4	9
May	5	12	8	6	21
June	6	9	10	6	12
July	5	6	6	3	7
August	6	11	3	6	8
September	5	6	3	11	17
October	1	5	1	8	10
November	2	-	-	2	10
December	4	2	5	11	15

Table 6. Monthly distribution of canonical marriages by decades from 1937 on.

were compiled and filed in chronological order, starting with the oldest. The older the data, the more information was lacking. In most of them, only the year of the marriage appeared, as well as notations such as "before 1886".

After these considerations, the study of the graph begins in 1917, the year when the civil marriages start to be registered the same day of their celebration. Comparing both registers, civil and canonical, an almost total parallel along the years in both can be observed in the graph (fig.1), starting to slightly disappear from 1970 onward. It could be explained because the couples celebrated a canonical marriage and the same day (or some day before or after) they were married in a civil ceremony. In the same way, the number of legal unions increases along with time.

The increase in the number of marriages is linked to an

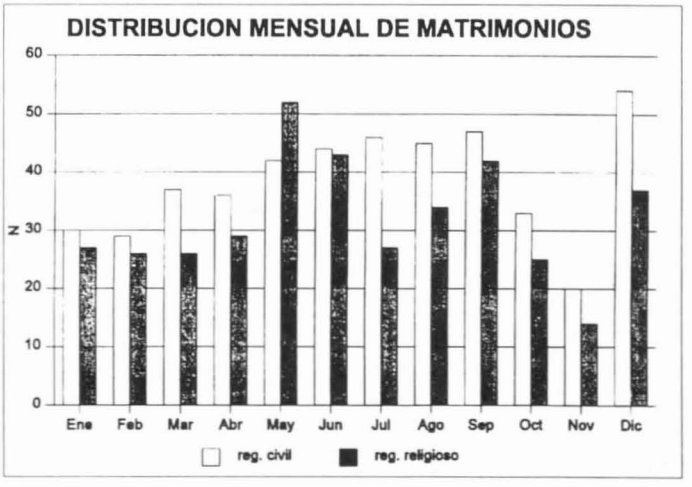

Figure 6. Monthly distribution of marriages in both registers during the whole studied period.

increase of the birth rate, as well as a larger immigrant movement. At the end of last century, the Rapanui population was less than a few hundred people (Métraux 1941). A census in the 1980s counted almost three thousand inhabitants. At

this moment, an important inflexion point took place in Rapanui society. At the end of the 1960s, Mataveri's airport was created (Santa Coloma 1995), considerably improving comunications between the island and the mainland. Up to that point, the only link with the mainland, almost 4,000 km away, was by an annual ship (Porteus 1981), which increased in frequency to twice a year from the beginning of the 1970s until now. Air transport meant a greater migratory movement, mainly immigratory, due to the creation of new jobs which, for the most part, are occupied by Chilean civil service.

Thus, one question concerns the decrease of the parallel between civil and canonical marriages; is it random or is it due to a social change in customs, favoured by an increase of mixed (mostly Rapanui-Chilean) marriages?

Another aspect is the existence of several unformalized unions that obviously are not reflected in any register. Some unpublished studies made by the author point out that living-together relationships have increased since the end of the 1960s; thus the records reflect a high proportion of the formalized unions.

With regard to seasonality of marriages, if whole periods are considered, a remarkable minimum is shown in both registers for November (figs. 2 and 3). Tables 5 and 6 indicate that only three civil marriages and two canonical ones were celebrated in November between 1946 and 1975. Specifically, there are long periods in which no marriages occurred in November (from 1955 to 1970 in a civil way and from 1946 to 1970 in a canonical way), a fact that doesn't occur in other months. What is it that causes the month of November to be less likely time for a Rapanui to marry?

A possible hypothesis could be the relation between the date of the arrival of the annual ship to the island and some social or economic activities derived from that arrival. It must be pointed out that until halfway through the 1960s, wool was the main exported article for the Rapanui. The arrival of the ship was an important event for the population because of food supplies and other goods, such as clothes and tobacco. In exchange, wool was loaded for shipment to the mainland. In the same way, this link was used for arriving or leaving personnel, including governmental, religious and military.

At the beginning of the 1970s, the ship from Valparaíso to Easter Island began to be biennial, which is the present frequency. However, this fact is less important because once the airport was constructed, the island was connected to the mainland by a weekly air-shuttle. In this way, ships were replaced by planes as the main mean for consumer goods import, mainly non-existent foods on the island, thus the arrival of the ship has become a much less important social event.

Some sources hint that a possible association between the scarcity of marriages in November and the celebration of a traditional ceremony called *tangata-manu* (bird-man) exists. This ancient tradition took place during September and October, a time when all inhabitants were occupied in its preparation, performances and celebrations. So after such festivities, November was an austere month, and December became a more favourable time for marriage. In the same way, during December and January, taro, yams, and camote crops (vegetable products of their diet) were abundant, as was fishing, a decisive factor in their diet.

Considering the whole period, the results point out the presence of seasonality (table 2). If the sample is divided into two periods, before and after 1970, no seasonality component is shown after 1970 in both registers (tables 3 and 4; figs. 4 and 5), indicating that marriages are distributed randomly through the year. However, the χ^2 test shows the presence of seasonality before 1970 in both registers.

If a monthly marriage distribution is considered (fig. 6), a minimum in November is followed by a maximum in December. Considering that the twelve months of the year have the same probability to be chosen for marriage, this could represent those marriages of December plus ones that were not celebrated in November.

It would be very interesting to undertake additional research on this subject in order to understand more of the socio-cultural features in Rapanui's population. There are large gaps in some related fields of study that could reveal important data about Rapanui's social organization and changes from their well-rooted traditions to changes brought by tourism.

Acknowledgements

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References

Bahn, P. and J. Flenley. 1992. *Easter Island, Earth Island.* Thames and Hudson. London.

Boutilier, J.A. 1992. METEI: a Canadian medical expedition to Easter Island, 1964-65. *Rapa Nui Journal.* Vol. 6, N° 2.

Englert, S. 1974. *La tierra de Hotu Matu'a.* Ed. Universitaria. Sexta edición. Santiago de Chile.

Henry, L. 1976. *Demografía.* Ed. Labor. Barcelona.

Henry, L. 1983. *Manual de demografía histórica.* Ed. Crítica. Barcelona.

Junyent, C. 1996. *Biodemografía de la Isla de El Hierro.* Tesis doctoral. Universidad de Barcelona.

Livi-Bacci, M. 1993. *Introducción a la demografía.* Ed. Ariel. Barcelona.

Luna, F. 1981. *Biología de la población alpujarreña. Evolución y estructura.* Tesis doctoral. Universidad de Barcelona.

Métraux, A. 1971. *Ethnology of Easter Island.* Bishop Museum Press Reprints. Honolulu.

Métraux, A. 1995. *La isla de Pascua.* Ed. Laertes. Barcelona.

Porteous, J. D. 1981. *The modernization of Easter Island.* Western Geographical Series, Volume 19. University of Victoria.

Routledge, K. 1919. *The mystery of Easter Island.* Hazell, Watson and Viney, London; reprint: AMS Press Inc. New York.

Salvat, M. 1992. Estructura matrimonial de la población de la Cerdanya Espanyola. *Tesina de Licenciatura.* Universidad de Barcelona.

Santa Coloma, M.E. 1995. Aeropuerto de Mataveri. *Revista Aérea.* Diciembre 1995-Enero 1996. Nueva York.